General

Title

Maternal and newborn care: rate of formula supplementation from birth to discharge in term infants whose mothers intended to exclusively breastfeed.

Source(s)

Maternal newborn dashboard - key performance indicator criterion reference guide, version 1.3. Ontario (Canada): Better Outcomes Registry and Network (BORN) Ontario; 2014 Jul 2. 12 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the rate of formula supplementation from birth to discharge in term infants whose mothers intended to exclusively breastfeed.

Rationale

Most mothers can breastfeed successfully (World Health Organization [WHO] & United Nations Children's Fund [UNICEF], "Acceptable medical," 2009). This includes initiating breastfeeding at birth, breastfeeding exclusively for the first 6 months, and continuing complementary breastfeeding for up to 2 years or beyond, as recommended by WHO (WHO & UNICEF, 2003) and endorsed by Health Canada (2004). The extensive short- and long-term benefits of breastfeeding are unequivocal (Dyson, McCormick, & Renfrew, 2005). Formula supplementation in contrast, is detrimental the health of both the child and the mother (Renfrew et al., 2009). While formula supplementation may be justifiably required in particular medical and social situations (WHO & UNICEF, "Acceptable medical," 2009), most newborns do not require, and

should not receive supplementation (Academy of Breastfeeding Medicine [ABM] Protocol Committee, 2009).

Despite the documented risks associated with formula supplementation, one-quarter of healthy full-term infants discharged from Ontario hospitals continue to receive supplementation ("Percent of healthy," 2008). Although the reasons underlying this knowledge-behavior gap are complex, and likely influenced by diverse socio-cultural norms (Dyson, McCormick, & Renfrew, 2005), there is a universal appreciation for the role of hospital policies and practices in achieving successful breastfeeding outcomes, including reducing the number of infants receiving supplementation when not medically indicated (WHO & UNICEF, "Baby-friendly," 2009). Accordingly, multiple approaches to promote breastfeeding/reduce formula supplementation have been undertaken in the hospital setting.

Evidence for Rationale

Academy of Breastfeeding Medicine Protocol Committee. ABM clinical protocol #3: hospital guidelines for the use of supplementary feedings in the healthy term breastfed neonate, revised 2009. Breastfeed Med. 2009 Sep;4(3):175-82. PubMed

Dyson L, McCormick F, Renfrew MJ. Interventions for promoting the initiation of breastfeeding. Cochrane Database Syst Rev. 2005 Apr 18;(2):CD001688. PubMed

Health Canada. Exclusive breastfeeding duration: 2004 Health Canada recommendation. Ottawa (Ontario): Health Canada; 2004.

Konnyu K, Grimshaw J, Moher D. What are the drivers of in-hospital formula supplementation in healthy term neonates and what is the effectiveness of hospital-based interventions designed to reduce formula supplementation?. Ottawa (Canada): Ottawa Hospital Research Institute; 2010 Oct. 13 p. (KTA Evidence Summary; no. 8).

Percent of healthy full-term infants receiving supplementation at discharge from hospital. Ottawa (Ontario): Better Outcomes Registry & Network (BORN) Ontario, Niday Perinatal Database; 2008.

Renfrew MJ, Craig D, Dyson L, McCormick F, Rice S, King SE, Misso K, Stenhouse E, Williams AF. Breastfeeding promotion for infants in neonatal units: a systematic review and economic analysis. Health Technol Assess. 2009 Aug;13(40):1-146, iii-iv.

World Health Organization (WHO), United Nations Children's Fund (UNICEF). Acceptable medical reasons for the use of breast-milk substitutes. Geneva (Switzerland): World Health Organization (WHO); 2009. 12 p.

World Health Organization (WHO), United Nations Children's Fund (UNICEF). Baby-friendly Hospital Initiative: revised, updated and expanded for integrated care. Section 1: background and implementation. Geneva (Switzerland): World Health Organization (WHO); 2009. 70 p.

World Health Organization (WHO), United Nations Children's Fund (UNICEF). Global strategy for infant and young child feeding. Geneva (Switzerland): World Health Organization (WHO); 2003. 30 p.

Primary Health Components

Breastfeeding; formula supplementation

Denominator Description

Total number of term infants discharged home whose mothers intended to exclusively breastfeed (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Number of term infants whose mothers intended to exclusively breastfeed and who received formula supplementation from birth to discharge home (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

A systematic review of the clinical research literature (e.g., Cochrane Review)

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

- Formula supplementation among term neonates is a harmful and often unnecessary practice; there are few infant or maternal conditions that justify complete and/or permanent discontinuation of breastfeeding. For conditions where supplementation is justified (e.g., severe maternal illness), the risks posed by the particular condition need to be weighed against the combined risks of formula supplementation and discontinuation and/or reduction of breastfeeding.
- Several observational studies involving diverse populations have sought to identify predictive factors associated with in-hospital supplementation. While various outcomes have emerged statistically within studies, it is difficult to determine a signal of particular outcomes across studies; in general though, maternal college education and prenatal education of the benefits of breastfeeding may be associated with reduced rates of in-hospital formula supplementation.
- Although many interventions have been put forward to improve in-hospital breastfeeding outcomes (and thereby reduce formula supplementation), high quality evidence from randomized controlled trials is limited. Nevertheless, various policies, programs and initiatives have been evaluated and have shown varying degrees of success in improving rates of breastfeeding initiation, duration, and exclusivity.

Refer to *What are the Drivers of In-hospital Formula Supplementation of Term Neonates and What is the Effect of Hospital-based Interventions Designed to Reduce Formula Supplementation?* for a summary of evidence around the main causes of in-hospital formula supplementation and the effectiveness of hospital-based interventions designed to reduce levels of formula supplementation in term neonates. The report's intention is to support efforts that seek to reduce levels of unnecessary formula supplementation in Ontario.

Evidence for Additional Information Supporting Need for the Measure

Konnyu K, Grimshaw J, Moher D. What are the drivers of in-hospital formula supplementation in

healthy term neonates and what is the effectiveness of hospital-based interventions designed to reduce formula supplementation?. Ottawa (Canada): Ottawa Hospital Research Institute; 2010 Oct. 13 p. (KTA Evidence Summary; no. 8).

Extent of Measure Testing

To validate the seven potential indicators as being appropriate for use throughout the province, the authors first extracted data from the BORN Information System (BIS) for fiscal year 2009 to 2010 to assess historical and current performance on these indicators across Ontario's 14 health regions (Local Health Integration Networks). Simultaneously, evidence summaries on each of the potential indicators were developed in collaboration with the Knowledge to Action Research Centre at the Ottawa Hospital Research Institute (Thielman et al., 2011; Konnyu, Grimshaw, & Moher, "What are the drivers," 2010; Konnyu, Grimshaw, & Moher, "What are the maternal," 2011; Konnyu, Grimshaw, & Moher, "What is known," 2011; Khangura, Grimshaw, & Moher, 2010). This group, which has expertise in the review and synthesis of literature to support evidence-informed health care decision-making, assisted with determining the level of scientific evidence to support each indicator. For example, the evidence summary on early term repeat Caesarean section (i.e., before 39 weeks' gestation) in a defined population determined that as a result of this practice there were indeed objective risks to babies that could be reduced by delaying delivery.

Following review of the data and evidence summaries, the committee removed one indicator and refined some of the others, leaving six. In five of the six, the potential for improvement in rates was obvious. The remaining indicator (rate of screening for group B streptococcus) is currently satisfactory throughout all health regions of the province; however, the committee felt it was important at the outset to have the dashboard reflect not only performance areas requiring improvement, but also areas in which performance was good.

Evidence for Extent of Measure Testing

Khangura S, Grimshaw J, Moher D. What is known about the timing of elective repeat cesarean section?. Ottawa (Canada): Ottawa Hospital Research Institute; 2010 May. 11 p.

Konnyu K, Grimshaw J, Moher D. What are the drivers of in-hospital formula supplementation in healthy term neonates and what is the effectiveness of hospital-based interventions designed to reduce formula supplementation?. Ottawa (Canada): Ottawa Hospital Research Institute; 2010 Oct. 13 p. (KTA Evidence Summary; no. 8).

Konnyu K, Grimshaw J, Moher D. What are the maternal and newborn outcomes associated with episiotomy during spontaneous vaginal delivery?. Ottawa (Canada): Ottawa Hospital Research Institute; 2011 Jul. 11 p. (KTA Evidence Summary; no. 13).

Konnyu K, Grimshaw J, Moher D. What is known about the maternal and newborn risks of elective induction of women at term?. Ottawa (Canada): Ottawa Hospital Research Institute; 2011 Mar. 13 p. (KTA Evidence Summary; no. 10).

Sprague AE, Dunn SI, Fell DB, Harrold J, Walker MC, Kelly S, Smith GN. Measuring quality in maternal-newborn care: developing a clinical dashboard. J Obstet Gynaecol Can. 2013 Jan;35(1):29-38. PubMed

Thielman J, Konnyu K, Grimshaw J, Moher D. What is the evidence supporting universal versus risk-based maternal screening to prevent group B streptococcal infection in newborns?. Ottawa (Canada): Ottawa Hospital Research Institute; 2011 Oct. 11 p. (KTA Evidence Summary; no. 14).

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Hospital Inpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Unspecified

Target Population Age

Infants

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Health and Well-being of Communities

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding Period

Three-month reporting period

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Institutionalization

Patient/Individual (Consumer) Characteristic

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

Total number of term infants discharged home whose mothers intended to exclusively breastfeed

Note: The key performance indicators (KPIs) criteria are defined by the pertinent BORN Information System (BIS) data elements that are used to calculate the rates and proportion values for the respective Maternal Newborn Dashboard KPI. As well, pick-list values for each data element, when selected, will result in a patient record to be either included or excluded for a given KPI based on the KPI criterion definition.

Refer to the original measure documentation for a complete list of KPI criteria.

Exclusions

Unspecified

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

Number of term infants whose mothers intended to exclusively breastfeed and who received formula supplementation from birth to discharge home

Note: Intention to breastfeed indicates whether the mother intends to exclusively breastfeed her infant. This is self-reported during pregnancy or at the time of birth.

Refer to the original measure documentation for a complete list of key performance indicator (KPI) criteria.

Exclusions

Unspecified

Numerator Search Strategy

Institutionalization

Data Source

Registry data

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

BORN Information System (BIS) Maternal Newborn Dashboard (MND)

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a lower score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Prescriptive Standard

Target:	Less than 20%
Warning:	20% to 25%
Alert:	Greater than 25%

Evidence for Prescriptive Standard

Sprague AE, Dunn SI, Fell DB, Harrold J, Walker MC, Kelly S, Smith GN. Measuring quality in maternal-newborn care: developing a clinical dashboard. J Obstet Gynaecol Can. 2013 Jan;35(1):29-38. PubMed

Identifying Information

Original Title

KPI 3 - Rate of formula supplementation from birth to discharge in term infants whose mothers intended to exclusively breastfeed.

Measure Collection Name

Maternal-Newborn Care Performance Indicators

Submitter

Better Outcomes Registry and Network (BORN) Ontario - State/Local Government Agency [Non-U.S.]

Developer

Better Outcomes Registry and Network (BORN) Ontario - State/Local Government Agency [Non-U.S.]

Funding Source(s)

Better Outcomes Registry and Network (BORN) Ontario is funded by the Ontario Ministry of Health and Long Term Care.

Composition of the Group that Developed the Measure

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Financial Disclosures/Other Potential Conflicts of Interest

None declared.

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2014 Jul

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in April 2016.

Measure Availability

Source not available electronically.

For more information, contact BORN Ontario at 401 Smyth Road, Ottawa, ON, K1H 8L1; Phone: 613-737-7600 x 6022; Web site: www.bornontario.ca/en/ ; E-mail: info@bornontario.ca.

NQMC Status

This NQMC summary was completed by ECRI Institute on January 26, 2015. The information was verified by the measure developer on April 21, 2015.

The information was reaffirmed by the measure developer on April 4, 2016.

Copyright Statement

Production

Source(s)

Maternal newborn dashboard - key performance indicator criterion reference guide, version 1.3. Ontario (Canada): Better Outcomes Registry and Network (BORN) Ontario; 2014 Jul 2. 12 p.

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